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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/544,742 | 04/07/2000 | Alex Kuperman | 44251 | 2331 |

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THE DOW CHEMICAL COMPANY
INTELLECTUAL PROPERTY SECTION
P. O. BOX 1967
MIDLAND, MI 48641-1967

EXAMINER

JOHNSON, EDWARD M

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1754

DATE MAILED: 12/10/2001

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/544,742

Applicant(s)

KUPERMAN ET AL.

Examiner

Edward M. Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-33 in Paper No. 7 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-9, 18, 20, 22-27, and 29-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Haruta et al. 5,051,394.

Regarding claim 1, Haruta '394 discloses a method for production of ultra-fine gold oxides comprising adding a gold compound with carboxylic acid (see column 3, lines 14-18) and a reducing agent (see column 1, lines 64-65), using a titanium oxide carrier (see column 8, lines 30-32).

Regarding claim 2, Haruta '394 discloses chloroauric acid, sodium chloroaurate, gold cyanide, potassium gold cyanide, and diethylamineauric acid trichloride (see column 4, lines 46-51).

Regarding claim 3, Haruta '394 discloses atomic ratio of Au/Ti = 1/19 (see column 9, lines 3-4).

Regarding claim 4, Haruta '394 discloses reduction with carboxylic acid (see column 6, lines 27-30).

Regarding claims 5-7, Haruta '394 discloses carboxylic acids and salts thereof (see column 5, lines 38-56).

Regarding claim 8, Haruta '394 discloses at least 1 mol per mol (see column 5, lines 57-61).

Regarding claim 9, Haruta '394 discloses mixing citric acid solution with the coprecipitate (see column 8, lines 61-67).

Regarding claim 18, Haruta '394 discloses a titanium oxide carrier (see column 8, lines 30-32).

Regarding claim 20, Haruta '394 discloses 0.05 mol titanium sulfate (see Example 1), and atomic ratio of Au/Ti = 1/19 (see column 9, lines 3-4).

Regarding claims 22-23, Haruta '394 discloses adding an alkali compound to the metal salt (see abstract).

Regarding claim 24, Haruta '394 discloses 0.21 mol of sodium carbonate (see Example 1).

Regarding claim 25, Haruta '394 discloses dissolving in magnesium citrate solution (see Example 1).

Regarding claim 26, Haruta '394 discloses thorough washing (see column 9, line 1).

Regarding claim 27, Haruta '394 discloses 0.21 mol of sodium carbonate (see Example 1).

Regarding claim 29, Haruta '394 discloses 20-90 degrees Celsius (see column 6, lines 64-68).

Regarding claim 30-32, Haruta '394 discloses drying and firing in air at 400 degrees Celsius (see column 9, lines 1-2).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 11-14, 16-17, 19, 21, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haruta '394.

Regarding claims 10 and 21, it is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a titanium salt as reducing agent because Haruta '394 discloses using titanium both as salts in gold compounds and support material (see column 4, lines 52-58 and column 8, lines 30-32), and Haruta also discloses reducing agents comprising carboxylic acids and salts thereof, giving examples of various transition metals (see column 5, lines 38-56).

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Regarding claims 11-14, Haruta '394 discloses using reducing agents comprising carboxylic acids and salts thereof (see column 4, lines 52-58).

Regarding claim 16, Haruta '394 discloses forming the gold/titania suspension before adding the reducing agent (see Example 1).

Regarding claim 17, Haruta '394 discloses the ratio of $Au/Ti = 1/19$ and 400 ml of 6.0 g/liter metal citrate solution (see Example 1).

Regarding claim 19, Haruta '394 discloses a titanium oxide carrier (see column 8, lines 30-32).

Regarding claim 28, it is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to conduct impregnation to the point of incipient wetness or less because Haruta '394 discloses impregnation with solution precipitation and also in view of Applicant's admission that such techniques are known in the art (Specification, page 7, first full paragraph).

6. Claims 10-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haruta '394 as applied to claim 1 above, and further in view of Hirose et al. 5,532,030.

Regarding claims 10-15, Hirose '030 discloses a hydrogenation product catalyst comprising a reducing agent or an acetylacetonate of a titan salt, (see column 26, lines 30-38).

Regarding claim 16, Haruta '394 discloses forming the gold/titania suspension before adding the reducing agent (see Example 1).

Regarding claim 17, Haruta '394 discloses the ratio of $\text{Au/Ti} = 1/19$ and 400 ml of 6.0 g/liter metal citrate solution (see Example 1).

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the titan acetylacetonate of Hirose as reducing agent in the catalyst composition of Haruta because Hirose discloses his acetylacetone for use in a catalyst (see column 26, line 31) with reducing agent (see column 26, line 35), and Haruta discloses reduction with various organometallic salts (see column 5, lines 38-56).

Response to Arguments

7. Applicant's arguments filed 10/31/01 have been fully considered but they are not persuasive.

The objection and rejections under 35 USC 112(2) have been withdrawn in view of Applicant's amendment.

It is argued that the Haruta '394 reference *taken in its entirety* relates to precipitation and coprecipitation methods. This is not persuasive because Applicant appears to suggest that the term impregnation distinguishes patentably over precipitation. However, impregnation is known in the art to involve precipitation and the two methods are not recognized in the art as mutually exclusive, as Applicant appears to suggest. For Applicant's benefit, two exemplary references are provided which specify an "impregnated" catalyst made by precipitation of the catalyst onto the support (see Abel et al. 5,571,771 column 8, Table and Wang et al. 5,700,753 column 2, lines 31-37). Haruta discloses gold particles immobilized on a titanium oxide carrier by loading them onto the carrier (see title and column 8, lines 30-32), which would inherently entail gold particles impregnated onto the carrier. Also, in any case, Applicant appears to admit that "impregnation" is known in the art (see remarks, page 7, 2nd full paragraph) and therefore cannot, by itself, be the basis for patentability.

It is argued that the precipitation/coprecipitation method of Haruta '394 disadvantageously requires large amounts of solvent that ultimately must be recovered. It is noted that the features upon which applicant relies (i.e., low amounts of solvent, amount of gold on a support from batch to batch, pH,

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speed with which method is conducted) are not recited in claim 1. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is argued that in contrast, the claimed impregnation method provides many advantages over the precipitation methods of Haruta '394. It is noted that the features upon which applicant relies (i.e., wetting only to the point of incipient wetness) are not recited in claim 1. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is argued that the claimed impregnation method provides many advantages over the precipitation methods of Haruta '394. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., amount of solvent, no pH control, consistency, etc.) are not recited in claim 1. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is argued that the rejection cites a list of specific locations in Haruta. This is not persuasive because impregnation is known in the art to involve precipitation and the two methods are not recognized in the art as mutually exclusive, as Applicant appears to suggest (see above). Claim 1 recites only impregnation and Haruta discloses loading and immobilization onto a support.

It is argued that for the record, however, we note that claims 22-24 and 27 require the use of promoter metal or metals. This is not persuasive because Haruta '394 discloses adding an alkali compound to the metal salt (see abstract) for precipitation, which would promote the precipitation of the catalyst onto the support. Applicant does not appear to allege that this alkali compound is not present in the catalyst composition or that it would not promote the disclosed catalyst precipitation.

It is argued that claim 10 refers to an impregnation method wherein the reducing agent contains titanium. This is not persuasive because Haruta '394 discloses using reducing agents comprising carboxylic acids and salts thereof (see column 4, lines 52-58) and titania support (see column 9, lines 3-4). Therefore, to practice the invention, one of ordinary skill would need titanium on hand. Applicant appears to suggest that

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one of ordinary skill would be no more motivated to select titanium for use in the reducing agent than any of the other 68 metals of the Periodic Table. However, although the Periodic Table comprises approximately 68 metals, the use of titanium is disclosed by Haruta, whereas many others of the 68 are not disclosed at all.

It is argued that with regard to claims 11-14, the rejection specifically states that Haruta discloses "using reducing agents." This is not persuasive because a carboxylic acid salt is considered an alkyl compound and a carboxylate compound, and Haruta '394 discloses using reducing agents comprising carboxylic acids and salts thereof (see column 4, lines 52-58) and titania support (see column 9, lines 3-4), which would obviously have led one of ordinary skill to use titanium as salt.

It is argued that with regard to claim 16, the rejection asserts that Haruta '394 discloses "forming the gold/titania suspension." This is not persuasive because impregnation is known in the art to involve precipitation (see above) and Haruta '394 discloses forming the gold/titania suspension before adding the reducing agent (see Example 1).

It is argued that in reply, amended claim 17 states titanium loading in units of weight percent titanium. This is

not persuasive because units of measurement are not considered to provide patentable weight and 1/19 is slightly above 5%.

It is argued that with regard to claim 19, the rejection asserts that Haruta '394 discloses a titanium oxide carrier. This is not persuasive because Haruta '394 discloses using reducing agents comprising carboxylic acids and salts thereof (see column 4, lines 52-58) and titania support (see column 9, lines 3-4). Therefore, to practice the invention, one of ordinary skill would need titanium on hand.

It is argued that Applicants vigorously insist that Haruta '394 does not disclose, suggest, or even hint at impregnation. This is not persuasive for the reasons above. Also, Examiner has not taken the position that it is "Obvious to try" incipient wetness. The terms "impregnation and precipitation" are not considered to be mutually exclusive for the reasons outlined above. Specifically, an impregnated catalyst produced with precipitation (see Wang et al. 5,700,753 column 2, lines 31-37) is known in the art.

It is argued that as further evidence of the unobviousness of Applicants' claims, the Examiner's attention is directed to page 7. This is not persuasive because Haruta 'EP is not relied upon and Haruta '394 is not considered to teach away from impregnation.

It is argued that claims at the start, it is noted that all of claims 10-17 require an impregnation technique. This is not persuasive because Applicant appears to admit that impregnation is known (above). In response to applicant's argument that Hirose et al. is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Applicant's claims are directed to a catalyst and Hirose discloses his acetylacetone for use in a catalyst (see column 26, line 31) with reducing agent (see column 26, line 35). Despite Applicant's suggestion that Hirose is not even remotely connected to the catalyst arts, Hirose specifically discloses the catalyst arts, in an olefin process, which is well known to employ catalysts. Further, not only does Hirose specifically identify the catalyst art, but also explains further in detail a reducing agent.

It is argued that buried at column 26, Hirose et al teaches the *ring-opening polymerization catalyst*. This is not persuasive because Applicant's claims are merely directed to a "catalyst composition." Therefore, the fact that Hirose specifies a more

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specific type of catalyst would not appear to weigh in favor of patentability. Applicant points out that Hirose discloses "a combination of...acetylacetonate of a metal...with a reducing agent;" therefore, since Hirose discloses the mixture of the compound with a reducing agent, it is considered that it would have been obvious to use this mixture as a reducing agent.

It is argued that Haruta '394's disclosure of titanium as a salt in gold compounds and in support materials is irrelevant. This is not persuasive because Haruta '394 discloses using reducing agents comprising carboxylic acids and salts thereof (see column 4, lines 52-58) and titania support (see column 9, lines 3-4). Therefore, to practice the invention, one of ordinary skill would need titanium on hand.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 703-305-0216. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin can be reached on 703-308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


STEVEN P. GRIFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

EMJ
December 8, 2001